A

Absorption in the Spectra of Late M-type Stars, The λ10500, *Andrew McKellar*, 73.
Albert Einstein, May 14, 1879–April 18, 1955, *C. A. Chant*, 194.
Argyle, P. E., The Effective Quantum Efficiency in Astronomical Spectroscopy, 19.
Astronomical Society, June 1955, The Regina, *John Hodges*, 231.
Astronomischer Jahresbericht, 131, 204.
Astronomy, Radio Science and, *A. E. Covington*, 156.
Astrophysical Journal, Supplement Series of the, 203.
Aurigae, Pre-eclipse Observations of ε, *K. O. Wright*, 221.
Aurora at the 1954 Total Eclipse, Observation for the, 127.

B

Bakos, G. A. (see Notes and Queries and Review of Publications).
Bateson, F. M., Planetary Observing, 1.
Biskind, Morton S. (see Notes and Queries).
Broten, N. W., Radio Brightness Distribution of the Sun at a Wave-length of 10.7 Centimetres, June 30, 1954 (with A. E. Covington, W. J. Medd, Mrs. G. A. Harvey), 235.
Burland, Miriam S., Robert Meldrum Stewart, December 15, 1878–September 2, 1954, 64 (see also Notes from Observatories).

C

Campbell, Dr. J. W., Death of, 131.
Chant, C. A., Albert Einstein, May 14, 1879–April 18, 1955, 194.
Comet, A Double-tailed, 34.
Covington, A. E., Radio Brightness Distribution of the Sun at a Wave-length of 10.7 Centimetres, June 30, 1954 (with W. J. Medd, Mrs. G. A. Harvey, N. W. Broten), 235; Radio Science and Astronomy, 156 (see also Notes from the National Research Council).

D

David Dunlap Observatory Observatory, Notes, 30, 161.
Dominion Astrophysical Observatory, Contributions, No. 42, *Argyle*, 19; No. 43, *Underhill*, 27; No. 44, *McKellar*, 73; No. 46, *Wright*, 221; Notes, 92, 209.
Dominion Observatory, Contributions, vol. 2, no. 19, *Thomson*, 197; Notes, 124, 251.

E

Early Days of the First Astronomical Observatory in Canada, The, *J. E. Kennedy*, 181.
Earth, Inside the, *J. A. Jacobs*, 97.
Eclipses of Long Duration of Totality, Solar, *Charles H. Smiley* and *Mary Quirk*, 69.
Effective Quantum Efficiency in Astronomical Spectroscopy, The, *P. E. Argyle*, 19.
Einstein, Albert, May 14, 1879–April 18, 1955, *C. A. Chant*, 194.
Emission in the O Stars, Some Observations of C III, *Anne B. Underhill*, 27.
Evolution of Stars, The, *J. B. Oke*, 8.
Expanding Universe, New Information about the, 130.

G

Galaxies, Super-systems of, 33.
Gaizauskas, B. R. (see Notes and Queries).
Geminid Observations at Montreal, Orionid and, 170.
Globular Star Clusters, A Summary of Variable Stars in, *Helen B. Sawyer*, 114.

H

Harvey, Mrs. G. A., Radio Brightness Distribution of the Sun at a Wavelength of 10.7 Centimetres, June 30, 1954 (with A. E. Covington, W. J. Medd, N. W. Broten), 235.
Heard, John F., Meteorites Large and Small, 49 (see also Notes from Observatories, Notes and Queries and Review of Publications).
Hodges, John, The Regina Astronomical Society, June 1955, 231.
Hogg, Helen S. (see Review of Publications and Sawyer, Helen B.).
Honours Received, 203.

I

I.A.U. in Dublin, Canadians at the, 255.
Inside the Earth, *J. A. Jacobs*, 97.
International Geophysical Year, 1957–58, 200.

J

Jacobs, J. A., Inside the Earth, 97.
Jupiter is a Radio Source, 174.
Jupiter's Satellites, 174.

K

Keeping, E. S. (see Notes and Queries).
Kennedy, J. E., The Early Days of the First Astronomical Observatory in Canada, 181; Plaque Unveiled on the First Astronomical Observatory in Canada, 151 (see also Notes from Observatories).

L

Latitude Results for 1954, Ottawa, *M. M. Thomson*, 197.
Lectures before the Society:
EDMONTON—Spectroscopy in Astronomy, *K. B. Newbound*, 180; Maps in Geography, *W. C. Wonders*, 219; Solar Eclipses and the Accurate Determination of Longitude, *D. R. Crosby*, 219; The Eclipse of June 30, 1954, *Bill Wilson*, 220.
MONTREAL—The Sun, *W. H. Birtles*, 218.
OTTAWA—Tides in the Solid Earth, *G. D. Garland*, 139; Debris of the Solar System, *D. K. Norris*, 140; Glaciation and the Ungava Crater, *J. M. Harrison*, 140; The Solar Eclipse of June 30th, 1954, in Northern Canada, *John F. Heard*, 140; Meteor Observing in North-western Canada, *G. A. Brealey*, 216; Re-opening of the Pulkovo Observatory, Leningrad, U.S.S.R., *W. S. McClenahan*, 216.
TORONTO—How Astronomy Helps in Mapping Canada's North Country, *Warren Forrester*, 46; Birthplaces of the Stars, *Adriaan Blaauw*, 46; Bird Flights Across the Moon, *G. F. Longworth*, 47.

M

McClenahan, W. S., Re-opening of the Pulkovo Observatory, Leningrad, U.S.S.R., May 20–22, 1954, 189.
McDonald, Jean K. (see Notes from Observatories).
McKellar, Andrew, The λ10500 Absorption in the Spectra of Late M-type Stars, 73.
Mayall, Margaret W. (see Variable Star Notes).
Medd, W. J., Radio Brightness Distribution of the Sun at a Wave-length of 10.7 Centimetres, June 30, 1954 (with A. E. Covington, Mrs. G. A. Harvey, N. W. Broten), 235.
Meteor News, 31, 117, 169, 205.
Meteor Observations at Regina and Fredericton, 117.
Meteor Showers, A Provisional Supplementary List of, 171.
Meteor Spectra (Appendix 3), Photographic, 169.
Meteorites, The Age of, 254.
Meteorites Large and Small, *John F. Heard*, 49.
Meteoritics, Here and There in, 205.
Millman, Peter M. (see Meteor News).

Milne, W. G., Seismology in British Columbia, 141.
Mineur, Henri, 1849–1954, 36.
Moon, On the Petrographic Structure of the, 127.

N

National Office, Notes from the, 175.
National Research Council, Notes, 158.
Northcott, Ruth J. (see Notes and Queries and Review of Publications).
Notes from the National Research Council, 158.
Notes from Observatories, 30, 92, 124, 161, 209, 251.
Notes and Queries, 33, 127, 174, 200, 253.

O

Observatories, Notes from, 30, 92, 124, 161, 209, 251.
Observatory in Canada, The Early Days of the First Astronomical, *J. E. Kennedy*, 181.
Observatory in Canada, Plaque Unveiled on the First, *K. E. Kennedy*, 151.
Observing, Planetary, *F. M. Bateson*, 1.
Oke, J. B., The Evolution of Stars, 8 (see also Review of Publications).
Orionid and Geminid Observations at Montreal, 170.
Ottawa Latitude Results for 1954, *M. M. Thomson*, 197.

P

Pamphlets Received, 204.
Perseid Meteors, 1954, Visual Observations of, 31.
Photographic Meteor Spectra (Appendix 3), 169.
Planetary Nebulae with Spiral Structure, 33.
Planetary Observing, *F. M. Bateson*, 1.
Plaque Unveiled on the First Astronomical Observatory in Canada, *J. E. Kennedy*, 151.
Pre-eclipse Observations of ϵ Aurigae, *K. O. Wright*, 221.
Pulkovo Observatory, Leningrad, U.S.S.R., May 20–22, 1954, Re-opening of the, *W. S. McClenahan*, 189.

Q

Quantum Efficiency in Astronomical Spectroscopy, The Effective, *P. E. Argyle*, 19.
Quirk, Mary, Solar Eclipses of Long Duration of Totality (with Charles H. Smiley), 69.

R

Radio Astronomy, Reports on, 34.
Radio Brightness Distribution of the Sun at a Wave-length of 10.7 Centimetres, June 30, 1954, *A. E. Covington, W. J. Medd, Mrs. G. A. Harvey, N. W. Broten*, 235.
Radio Science and Astronomy, *A. E. Covington*, 156.
Regina Astronomical Society, June 1955, The, *John Hodges*, 231.
Re-opening of the Pulkovo Observatory, Leningrad, U.S.S.R., May 20–22, 1954, *W. S. McClenahan*, 189.
Review of Publications:
Bergh, van den, Prof. Dr. G., Eclipses in the Second Millenium B.C. and How to Compute Them in a Few Minutes, *G.A.B.*, 208.
Chandrasekhar, S. and Donna D. Elbert, The Illumination and Polarization of the Sunlit Sky on Rayleigh Scattering, *J.B.O.*, 164.
Chant, C. A., Astronomy in the University of Toronto: The David Dunlap Observatory, *J.F.H.*, 132.
Coleman, James A., Relativity for the Layman, *G.A.B.*, 135.
Johnson, John C., Physical Meteorology, *J.F.H.*, 43.
Kuiper, Gerard P. (editor), The Earth as a Planet, *J.F.H.*, 256.
Kuiper, Gerard P. (editor), The Sun, *J.F.H.*, 44.
Payne-Gaposchkin, Cecilia, Variable Stars and Galactic Structure, *H.S.H.*, 207.

Mayall, R. Newton and Margaret W. Mayall, Olcott's Field Book of the Skies, *R.J.N.*, 135.
National Bureau of Standards Applied Mathematics Series–37, Tables of Functions and of Zeros of Functions, *J.B.O.*, 164.
Skilling, William T. and Robert S. Richardson, A Brief Text in Astronomy, *J.F.H.*, 42.
Smith, Edwin Burrows, Jean-Sylvain Bailly, Astronomer, Mystic, Revolutionary, 1736–1793, *H.S.H.*, 133.
Wistar, Richard, Man and His Physical Universe, *R.J.N.*, 134.
Royal Astronomical Society of Canada, Annual Meeting, 76; Minutes of Annual Meeting, 137; Edmonton Centre, 179; Montreal Centre, 217; Toronto Centre, 138; Notes, 175.

S

Sawyer, Helen B., A Summary of Variable Stars in Globular Star Clusters, 114 (see also Hogg, Helen S.).
Seismology in British Columbia, *W. G. Milne*, 141.
Smiley, Charles H., Solar Eclipses of Long Duration of Totality (with Mary Quirk), 69.
Solar Eclipses of Long Duration of Totality, *Charles H. Smiley* and *Mary Quirk*, 69.
Some Observations of C III Emission in the O Stars, *Anne B. Underhill*, 27.
Spectra of Late M-type Stars, The λ10500 Absorption in the, *Andrew McKellar*, 73.
Spectroscopy, The Effective Quantum Efficiency in Astronomical, *P. E. Argyle*, 19.
Stars, The Evolution of, *J. B. Oke*, 8.
Stars, Extremes in, 129.
Stars, The λ10500 Absorption in the Spectra of Late M-type, *Andrew McKellar*, 73.
Stars, Some Observations of C III Emission in the O, *Anne B. Underhill*, 27.
Stewart, Robert Meldrum, December 15, 1878–September 2, 1954, *Miriam S. Burland*, 64.
Summary of Variable Stars in Globular Star Clusters, A, *Helen B. Sawyer*, 114.
Sun, The, 201.
Sun at a Wave-length of 10.7 Centimetres, June 30, 1954, Radio Brightness Distribution of the, *A. E. Covington, W. J. Medd, Mrs. G. A. Harvey, N. W. Broten*, 235.
Sun-spots, Large, 253.

T

Temperatures in the Northern and Southern Hemispheres, Comparison of, 176.
Thomson, Andrew (see Notes and Queries).
Thomson, M. M., Ottawa Latitude Results for 1954, 197.

U

Underhill, Anne B., Some observations of C III Emission in the O Stars, 27.
University of New Brunswick Observatory, Notes, 126, 163, 253.

V

Variable Star Notes, 37, 93, 119, 165, 211, 248.
Variable Stars in Globular Star Clusters, A Summary of, *Helen B. Sawyer*, 114.
Venus, The Night-sky Spectrum of, 202.
Venus, The Pole of Rotation of, 129.

W

Williamson, Dorothy C. (see Notes and Queries).
Wright, K. O., Pre-eclipse Observations of ε Aurigae, 221.

THE JOURNAL
OF
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

DEVOTED TO THE ADVANCEMENT OF ASTRONOMY AND ALLIED SCIENCES

EDITOR, C. A. CHANT ASSISTANT EDITOR, RUTH J. NORTHCOTT

David Dunlap Observatory
Richmond Hill P.O., Ont.

ASSOCIATE EDITORS:

C. S. BEALS
Dominion Astronomer
Ottawa

R. M. PETRIE
Dominion Astrophysicist
Victoria, B.C.

A. THOMSON
Controller of the Meteorological Service of Canada, Toronto

PUBLISHED BI-MONTHLY
(*Six numbers per year*)

VOLUME XLIX, 1955

PRINTED FOR THE SOCIETY
TORONTO: 13 ROSS ST.

CONTENTS FOR VOLUME XLIX, 1955

I. JANUARY-FEBRUARY

		Page
Planetary Observing	*F. M. Bateson*	1
The Evolution of Stars	*J. B. Oke*	8
The Effective Quantum Efficiency in Astronomical Spectroscopy	*P. E. Argyle*	19
Some Observations of C III Emission in the O Stars	*Anne B. Underhill*	27
Notes from Observatories (David Dunlap Observatory: *J.F.H.*)		30
Meteor News (Visual Observations of Perseid Meteors, 1954)	*Peter M. Millman*	31
Notes and Queries (Super-systems of Galaxies: *B.R.G.*; Planetary Nebulae with Spiral Structure: *G.A.B.*; A Double-tailed Comet: *B.R.G.*; Reports on Radio Astronomy: *R.J.N.*; Henri Mineur, 1849–1954: *G.A.B.*)		33
Variable Star Notes	*Margaret W. Mayall*	37
Review of Publications (*A Brief Text in Astronomy* by William T. Skilling and Robert S. Richardson: *J.F.H.*; *Physical Meteorology* by John C. Johnson: *J.F.H.*; *The Sun* edited by Gerard P. Kuiper: *J.F.H.*)		42
Meetings of the Society—Toronto, Edmonton		45

II. MARCH-APRIL

Meteorites Large and Small	*John F. Heard*	49
Robert Meldrum Stewart, December 15, 1878–September 2, 1954	*Miriam S. Burland*	64
Solar Eclipses of Long Duration of Totality	*Charles H. Smiley* and *Mary Quirk*	69
The λ10500 Absorption in the Spectra of Late M-type Stars	*Andrew McKellar*	73
Annual Meeting of the Royal Astronomical Society of Canada: Reports of the National Secretary, Librarian, Secretaries of the Centres, National Treasurer, Treasurers of the Centres, Officers for 1955		76
Notes from Observatories (Dominion Astrophysical Observatory, Victoria, B.C.: *J.K.M.*)		92
Variable Star Notes	*Margaret W. Mayall*	93

III. MAY-JUNE

Inside the Earth	*J. A. Jacobs*	97
A Summary of Variable Stars in Globular Star Clusters	*Helen B. Sawyer*	114
Meteor News (Meteor Observations at Regina and Fredericton)	*Peter M. Millman*	117
Variable Star Notes	*Margaret W. Mayall*	119
Notes from Observatories (Dominion Observatory, Ottawa: *M.S.B.*; University of New Brunswick Observatory, Fredericton, N.B.: *J.E.K.*)		124
Notes and Queries (Observation for the Aurora at the 1954 Total Eclipse: *J.F.H.*; On the Petrographic Structure of the Moon: *G.A.B.*; The Pole of Rotation of Venus; Extremes in Stars; New Information about the Expanding Universe: *R.J.N.*; Death of Dr. J. W. Campbell: *E. S. Keeping*; Astronomischer Jahresbericht)		127

Review of Publications (*Astronomy in the University of Toronto: The David Dunlap Observatory* by C. A. Chant: *J.F.H.*; *Jean-Sylvain Bailly, Astronomer, Mystic, Revolutionary, 1736–1793* by Edwin Burrows Smith: *H.S.H.*; *Man and His Physical Universe* by Richard Wistar: *R.J.N.*; *Relativity for the Layman* by James A. Coleman: *G.A.B.*; *Olcott's Field Book of the Skies* revised by R. Newton Mayall and Margaret W. Mayall: *R.J.N.*) 132
Meetings of the Society—Annual Meeting, Toronto, Ottawa 137

IV. JULY-AUGUST

Seismology in British Columbia ..... *W. G. Milne* 141
Plaque Unveiled on the First Astronomical Observatory in Canada *J. E. Kennedy* 151
Radio Science and Astronomy ..... *A. E. Covington* 156
Notes from the National Research Council: *A.E.C.* 158
Notes from Observatories (David Dunlap Observatory: *J.F.H.*; University of New Brunswick Observatory, Fredericton, N.B.: *J.E.K.*) 161
Review of Publications (*Tables of Functions and of Zeros of Functions*, National Bureau of Standards Applied Mathematics Series–37: *J.B.O.*; *The Illumination and Polarization of the Sunlit sky on Rayleigh Scattering* by S. Chandrasekhar and Donna D. Elbert: *J.B.O.*) 164
Variable Star Notes ..... *Margaret W. Mayall* 165
Meteor News (Photographic Meteor Spectra (Appendix 3); Orionid and Geminid Observations at Montreal; A Provisional Supplementary List of Meteor Showers) ..... *Peter M. Millman* 169
Notes and Queries (Jupiter is a Radio Source; Jupiter's Satellites: *R.J.N.*; Notes from the National Office: *D.C.W.*; Comparison of Temperatures in the Northern and Southern Hemispheres: *Morton S. Biskind, Andrew Thomson*) 174
Meetings of the Society—Edmonton 179

V. SEPTEMBER-OCTOBER

The Early Days of the First Astronomical Observatory in Canada *J. E. Kennedy* 181
Re-opening of the Pulkovo Observatory, Leningrad, U.S.S.R., May 20–22, 1954 ..... *W. S. McClenahan* 189
Albert Einstein, May 14, 1879–April 18, 1955 ..... *C. A. Chant* 194
Ottawa Latitude Results for 1954 ..... *M. M. Thomson* 197
Notes and Queries (International Geophysical Year 1957–1958; The Sun: *R.J.N.*; The Night-sky Spectrum of Venus: *G.A.B.*; Honours Received; Supplement Series of the Astrophysical Journal: *R.J.N.*; Astronomischer Jahresbericht; Pamphlets Received) 200
Meteor News (Here and There in Meteoritics) ..... *Peter M. Millman* 205
Review of Publications (*Variable Stars and Galactic Structure* by Cecilia Payne-Gaposchkin: *H.S.H.; Eclipses in the Second Millenium B.C. and How to Compute Them in a Few Minutes* by Prof. Dr. van den Bergh: *G.A.B.*) 207
Notes from Observatories (Dominion Astrophysical Observatory, Victoria, B.C.: *J.K.M.*) 209
Variable Star Notes ..... *Margaret W. Mayall* 211
Meetings of the Society—Ottawa, Montreal, Edmonton 216

VI. NOVEMBER-DECEMBER

Pre-eclipse Observations of ε Aurigae ..... *K. O. Wright* 221
The Regina Astronomical Society, June 1955 ..... *John Hodges* 231
Radio Brightness Distribution of the Sun at a Wave-length of 10.7 Centimetres, June 30, 1954
A. E. Covington, W. J. Medd, Mrs. G. A. Harvey, N. W. Broten 235
Variable Star Notes ..... *Margaret W. Mayall* 248
Notes from Observatories (Dominion Observatory, Ottawa: *M.S.B.*; University of New Brunswick Observatory, Fredericton, N.B.: *J.E.K.*) 251
Notes and Queries (Large Sun-spots; The Age of Meteorites: *R.J.N.*; Canadians at the I.A.U. in Dublin) 253
Review of Publications (***The Earth as a Planet*** edited by Gerard P. Kuiper: *J.F.H.*) 256
Meetings of the Society—Edmonton 258
Index to Volume **XLIX** **259**
Table of Contents for Volume **XLIX** ..... i to v